

REMARKS

1. No claims have been amended, added or canceled in the present response. Claims 1-6 and 8-16 remain in the case.

Generally, the present invention is directed to an audible signaling device adapted for operation on a moving vehicle (e.g., a locomotive), which allows for producing a dynamically changing sound field pattern as the vehicle advances to cover a geographic zone. A digital signal processor (DSP) supplies signals for driving a plurality of amplifiers and loudspeakers. The shape of the sound field is controlled by dynamically varying the frequencies, amplitudes and phases of the signals to achieve coverage over a geographic zone (and minimizing coverage over undesired zones) as the vehicle advances. For example, the signal generator may reside on a train locomotive to produce a sound field pattern covering a portion of roadway near a grade crossing (and minimizing coverage over geographic area not near a grade crossing) as the train advances.

2. Claims 1, 5, 13 and 14 were rejected under 35 U.S.C. 102(b) as being anticipated by Neuhaus et al. US Patent 5,012,221. This rejection is respectfully traversed.

Neuhaus is directed to an improved audible warning system ("siren system") for use in emergency vehicles. Conventionally, siren systems produced a continuous audible warning consisting of a single repeating pattern. One of the undesirable aspects of such conventional systems is they create a high sense of urgency, oftentimes unnecessarily. Neuhaus addresses this problem by providing for different selectable sound patterns and different repetition rates that can indicate varying levels of urgency. For example, various embodiments provide for increasing the repetition rate according to the speed of the emergency vehicle; and dissimilar sound phrases may be utilized from forward- and rear-directed speakers to convey different senses of urgency.

It is noted, to the extent Neuhaus describes adjusting attributes of the sound signal, including spectral content, amplitude, frequency and repetition rate, it is in the context of creating discrete sound patterns to convey different senses of urgency. The sound patterns, however defined, are selectable to produce different discrete patterns having different discrete shapes.

Neuhaus does not disclose or suggest dynamically changing the shape of the patterns as the vehicle advances, not to mention dynamically changing the shape to cover a geographic zone.

Accordingly, claim 1 distinguishes over Neuhaus for at least the reason that it recites a vehicle-mounted audible signal generator that produces a dynamically changing sound field pattern relative to a geographic zone. Claims 5, 13 and 14 distinguish over Neuhaus for at least the reason of their dependence on claim 1.

3. Claims 2-4, 8 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Neuhaus in view of Welk; claims 6, 10 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Neuhaus; and claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Neuhaus in view of Anderson. These rejections are respectfully traversed.

a. Welk is directed to a railway crossing system warning system that includes a GPS receiver to identify the location of a train relative to a railroad crossing. The Office Action suggests that Welk may be combined with Neuhaus to supply the limitation of a location determination device. Respectfully, even if Welk and Neuhaus could be combined, Welk does not provide limitations missing from Neuhaus relating to dynamically changing a sound field pattern relative to a geographic zone as discussed in relation to claim 1. Accordingly, claims 2-4, 8 and 11 distinguish over the combination of Welk and Neuhaus for at least the reason of their dependence on claim 1.

b. With respect to claims 6, 10 and 12, the Office Action suggests that Neuhaus may be combined with information of ordinary skill in the art relating to storing waveforms as PCM data and using a time of day detector or class D amplifiers, respectively. Respectfully, even if the relevant information were known in the art and could be combined with Neuhaus, the combination does not disclose or suggest a dynamically changing sound field pattern as discussed in relation to claim 1. Accordingly, claims 6, 10 and 12 distinguish over the combination of Neuhaus with information of ordinary skill in the art for at least the reason of their dependence on claim 1.

c. Anderson is directed to a railway crossing system warning system that includes a controller that detects an approaching train and in response thereto, activates directional horns at the railroad crossing intersection. The Office Action suggests that Anderson may be combined with Neuhaus to supply the limitation of a position detector. Respectfully, even if Anderson and Neuhaus could be combined, Anderson does not provide limitations missing from Neuhaus relating to dynamically changing a sound field pattern relative to a geographic zone as discussed in relation to claim 1. Accordingly, claim 9 distinguishes over the combination of Anderson and Neuhaus for at least the reason of its dependence on claim 1.

4. Claims 15 and 16 were indicated to be allowed.

5. In view of the above remarks, a notice of allowance of claims 1-6 and 8-16 is respectfully requested. The Commissioner is authorized to charge any additional fees that may be required, or credit any overpayment, to Lucent Technologies Deposit Account No. 12-2325.

Respectfully submitted,

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